



## NASA Center for Climate Simulation: NASA Model and Observational Data on the Earth System Grid

### Overview

Climate model data contributions to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) are expected to exceed hundreds of petabytes over the next few years, and this data will need to be made available to the international climate community. The Earth System Grid Federation (ESGF) is a partnership of climate modeling centers created to provide secure, web-based, distributed access to the Coupled Model Intercomparison Project Phase 5 (CMIP5) model data that will serve as the basis for IPCC AR5. The ESGF provides the ability to search, download, analyze, and visualize this distributed data through one common web interface.

The NASA Center for Climate Simulation (NCCS), located at NASA Goddard Space Flight Center in Greenbelt, Maryland, is contributing to the ESGF by providing access to the model data produced at the NCCS by the Global Modeling Assimilation Office (GMAO) and the Goddard Institute for Space Studies (GISS).

The NCCS is also hosting CMIP5 data from the National Oceanic and Atmospheric Administration (NOAA) and the Center for Ocean-Land-Atmosphere Studies (COLA) produced with NOAA's National Centers for Environmental Prediction (NCEP) model.

In addition to climate model data, the ESGF is providing access to selected sets of the 30-year reanalysis data from the GMAO's Modern Era Retrospective-Analysis for Research and Applications (MERRA) and selected subsets of NASA observational data.

### Data Access

To access the available data, visit the NCCS ESGF Gateway:

<http://esgf.nccs.nasa.gov/>

Users can search by categories such as Institute, Model, and Variable. Future versions of the ESGF will allow data visualization and analysis using Live Access Server (LAS) and Ultrascale Visualization - Climate Data Analysis Tools (UV-CDAT).

### Model Products

#### NASA, Goddard Institute for Space Studies

**ModelE** – Search on Institute > NASA-GISS

For more information on GISS/ModelE: <http://www.giss.nasa.gov/tools/modeler/>

#### NASA, Global Modeling and Assimilation Office

**GEOS-5** – Search on Institute > NASA-GMAO

For more information on GMAO/GEOS-5: <http://gmao.gsfc.nasa.gov/systems/geos5/>

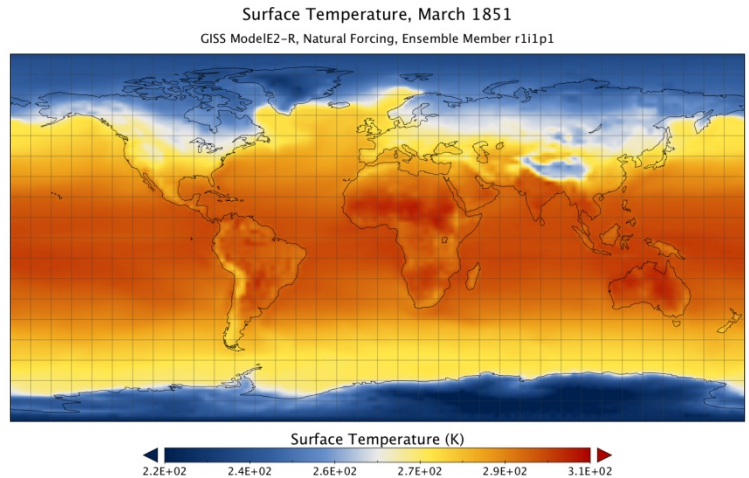
**MERRA** monthly means – Search on Project > obs4MIPS, Institute > NASA-GMAO

For more information on GMAO/MERRA: <http://gmao.gsfc.nasa.gov/research/merra/>

#### NOAA, National Centers for Environmental Prediction

**Climate Forecast System (CFS)** – Search on Institute > NOAA-NCEP

For more information on NOAA/NCEP: <http://www.ncep.noaa.gov/>



## Model Products (continued)

### Center for Ocean-Land-Atmosphere Studies

**CFS** – Search on Institute > COLA-CFS

For more information on COLA: <http://www.iges.org/cola.html>

## Observational Data Subsets

### NASA, Langley Research Center

Clouds and the Earth's Radiant Energy System (**CERES**) – Search on Project > obs4MIPS, Institute > NASA-LaRC

For more information on CERES: <http://ceres.larc.nasa.gov/>

### NASA, Goddard Space Flight Center

Tropical Rainfall Measuring Mission (**TRMM**) – Search on Project > obs4MIPS, Institute > NASA-GSFC – available early 2012

For more information on TRMM: <http://trmm.gsfc.nasa.gov/>

## Future Products

The NCCS plans to publish monthly means variables from additional climate analysis projects, including:

- GMAO Aerosol Analysis: <http://gmao.gsfc.nasa.gov/research/aerosol/>
- NOAA 20<sup>th</sup> Century Reanalysis: [http://www.esrl.noaa.gov/psd/data/20thC\\_Rean/](http://www.esrl.noaa.gov/psd/data/20thC_Rean/)
- NASA Global Precipitation Analysis: <http://precip.gsfc.nasa.gov/>

There are 27 variables identified that match the CMIP5 variables. The analysis and reanalysis data will need to be converted to the CMIP5 standard before publication to allow for comparison with already published model data.

**For more information about the NASA Center for Climate Simulation, visit <http://www.nccs.nasa.gov>**

